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TECHNICAL REPORT

For The

Cargo Movement Operations System (CMOS)

Level of Effort Assessment for CMOS/ADAM III Merger

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Section I

Introduction. The purpose of this assessment is to determine the work necessary to merge the ADAM III functionality into CMOS.

Summary. The general strategy for this study was to further define the SSS Outline Document using materials furnished by the HQ MAC/TR/SC staffs and to examine these requirements to determine their impact in each of six system design element categories. Five steps were needed to complete this study. In order of occurrence, they were (1) to explain the processes at work in ADAM III, (2) to identify the system design element categories, (3) to visualize the incorporation of ADAM III requirements into CMOS, (4) to record each instance, and (5) to total the counts for each category. Sizing the scope of the CMOS ADAM III merger should be tempered by the presence of mitigating factors. These include: (1) pending conclusion of ADAM III requirements study, (2) documentation immaturity in CMOS and incompleteness in ADAM III, (3) wholesale adoption of ADAM III procedures, (4) no measurement of process complexity, (5) inability to allocate all requirements to categories, and (6) noninterchangeability between CMOS ad hoc queries and ADAM III preformatted queries.

Conclusion. The additional work for merging the ADAM III requirements into CMOS is shown in the table below.

	MENU OPTIONS	FULL SCREENS	HHT SCREENS	LOCAL REPORTS	EXTERNAL INTERFACES	DATA FIELDS		
						<5	5-26	>26
TOTAL	80	171	192	42	67	21	2	2

Section II

Results.

A. Overview.

Purpose. As stated earlier, the purpose of this assessment is to determine the work necessary to merge ADAM III's functionality into CMOS.

Strategy. The SSS Outline Document prepared by the CMOS Program Office and SAIC during the trip to HQ MAC Scott AFB, IL (8-12 JAN 90) provides the basis for this study. The general strategy was to further define the SSS Outline Document using materials furnished by the HQ MAC/TR/SC staffs and to examine these requirements to determine their impact in each of six system design element categories.

Description of Approach. The five steps used in this study are as follows:

1. Explain the processes at work in ADAM III and the information available to its users by examining the ADAM III User's Manual (draft) and record layouts.
2. Identify six categories of system design elements for use in quantifying the impact of the requirements. The categories are: Menu Options, Full Screens, Hand Held Terminal Screens, Local Reports, External Interfaces, and Data Fields. A Menu Option is defined as an additional line on an input screen that represents a function available for selection. A Full Screen is an entire screen needed either to facilitate data input or to present a menu of functions. A Hand Held Terminal (HHT) Screen represents the HHT's equivalent to the Full Screen. The category of Local Reports includes preformatted data base queries, managerial reports, and reports that aid dayto-day operations, including forms and movement documents. The External Interfaces category was established to track the number of different messages or notices that flow port to port, port to HQs, and HQs to external systems. The Data Fields category represents the estimated additional number of data fields necessary to satisfy the requirement.
3. Visualize the incorporation of the ADAM III requirements into CMOS via the six categories.
4. Record each instance where a new design element was needed to satisfy the requirement without repeating the count for the same requirement elements. Generally, additional functions were counted as needing at least one menu option and at least one full input screen. These were adjusted for the amount of data needed or the format of particular reporting functions. When an estimate of the equivalent number of HHT screens was needed a ratio of one full screen to six HHT screens was applied. This ratio was derived as follows: A typical full size input screen contains space for 1920 characters (80 X 23 characters). The HHT input screen contains space for 80 characters (4 X 20 characters). Since approximately half of a full-sized input screen is blank and the space devoted to prompts could be reduced by

half, the space utilized for a full screen can be estimated at 480 characters. Dividing 480 by 80 (the space available on an HHT screen) provides the ratio of 1:6. One preformatted query, managerial report, or operational report resulted in one count for local reports. The relationships between ADAM III and overseas ACA, MATCU, CONUS ACA, MAC HOST/TRAIS/MACA, and DAMMS are viewed strictly as external interfaces, even though gray areas exist where ACA and MATCU manipulate ADAM III data. In these cases, updates and queries are counted as an external interface. The estimated number of data fields falls into one of three categories - less than five (< 5), five to 26 (5 - 26), and more than 26 (> 26).
5. Total the counts for each category. For the data fields, a count for each range was used instead of a discrete sum of data fields.

Qualifications. A number of mitigating factors affected the results of this study. These factors should be incorporated into the simplified sizing counts to form a better basis for determining the scope of the MAC CMOS merger.

1. Requirements definition. The requirements considered for this study were limited to those identified in the SSS Outline Document. This is an interim document that permits requirements definition to proceed while allowing an assessment of task sizing to continue in parallel.

2. Documentation constraints. The initial strategy for accomplishing this task was replaced with a second, because the needed information was not found in existing documentation.

a) The initial strategy for this task was to isolate the ADAM III requirements not covered in CMOS, compare these to the CMOS design relationship of system capability > data entity > data fields, and thereby establish the design elements needed to incorporate ADAM III requirements into CMOS. However, this effort revealed shortcomings in the CMOS and ADAM III documentation. For CMOS, CSCI documentation does not map all of the system capabilities to data entities. This prevented the construction of the relationship. At this stage of development, CMOS documentation does not contain the level of detail needed to make comparisons. From the ADAM III perspective, life cycle documentation has not kept pace with system advances. The documentation available may not completely and accurately depict how ADAM III has evolved.

b) The second strategy employed the SSS Outline Document as the basis for defining ADAM III requirements beyond the scope of CMOS.

3. Our analysis did not attempt to integrate ADAM III requirements into the conceptual design of CMOS. Instead, we adopted ADAM III procedures in a wholesale fashion to avoid modifying baselined documents. The inability to fine-tune baselined documents may inflate the magnitude of the overall effort.

4. The method of measuring this level of effort by counting micro level design elements, such as screens and interfaces, fails to measure the complexity inherent in the processes behind those elements. Since procedural steps and other complexities have not been measured, the task has been over simplified.

5. Not every requirement could be allocated among the categories. The following are examples of this situation.

a) CMOS terminals for NAF/ALD and MATCU. This is an architectural matter beyond the scope of this task (reference Section B, 8 and 10).

b) Release of cargo to the consignee. This is a manual procedure with system implications, yet is out of the scope of this task (reference Section B, 14).

6. The CMOS ad hoc query capability cannot be considered a direct substitute for the preformatted queries required by ADAM III. Ad hoc queries must be constructed each time they are issued; this makes them inefficient as aids in performing routine, predictable operations. Therefore, ADAM III's preformatted query requirements are not viewed as being met by CMOS and have been included in this study.

B. SSS Outline Document References and Data.

This subsection contains background information on each requirement issue from the SSS Outline Document and a list of associated new requirements for CMOS. The tables relate the new requirements to the design element categories and provide the data.

1. Background (reference SSS Outline Document, 2.1.2). ADAM III captures much of the workload data used to compile the Monthly Station Traffic Handling Report, RCS: MAC-TRX (M&Q) 7107 and makes this information available for manual entry on the form. The only overlapping data CMOS collects in its TWRAPS are the number of tons of cargo that are terminated, originated, and rehandled.

<u>New Requirements for CMOS.</u>

1. Provide the capability to collect the following data for the manual completion of blocks II, III, and IV of the 7107 report:

   a. Block II, all
   b. Block III, B, C, D, and E
   c. Block IV, all
   d. Block V, all

	MENU OPTIONS	FULL SCREENS	HHT SCREENS	LOCAL REPORTS	EXTERNAL INTERFACES	DATA FIELDS
1.	1	1	0	0	0	>26
TOTAL	1	1	0	0	0	

2. Background (reference, 2.1.3). The ADAM III over/short cargo processing function reports and monitors over shipments and short shipments. This function is comprised of five capabilities. They are: Over/short reconciliation, shipment tracing, overshipment manifesting, restoration of shorted cargo to a movement ready status, and over/short message transmission. CMOS' over/short shipment resolution procedures cover the basic ADAM III reconciliation process; however, the CMOS operator will not have the ability to edit these records. For an overshipment in ADAM III, the record is entered in the MINIS data base and the over/short file. For a short shipment, the record is only entered on the over/short file. Data records personnel use the MINIS to send an over/short message to the HQ MAC Host, identifying the problem and which aerial port(s) need to be notified. The message is sent out through AUTODIN with the clear text address and routing indicator added.

To reconcile an overshipment, the sending port generates a new manifest. This new manifest will, in effect, be a short shipment to cancel the over shipment. The record is purged from over/short file. To reconcile a short shipment, the APOE sends the missing cargo to the APOD either with or without a manifest. When the original short shipped cargo is received, the record is purged from the over/short file and moved to the MINIS data base. Port personnel have 10 days to reconcile over shipments before they are automatically purged. They have 20 days to purge short shipments before they are automatically purged.

New Requirements for CMOS.

1. Provide the air and surface freight functions with an edit capability for all data fields in the over/short shipment file and add these fields:

a. Second request
b. Case number

2. Provide the CMOS that originated an over shipment with the capability to add the shipment to the mission (in the data base) on which it moved.

3. Provide the CMOS that shorted a piece of cargo or a pallet from a lifted manifest with the capability to restore the cargo to a movement ready status.

4. Provide air and surface freight functions with the message transmission capability present in the "Over/short Message facility".

	MENU OPTIONS	FULL SCREENS	HHT SCREENS	LOCAL REPORTS	EXTERNAL INTERFACES	DATA FIELDS
1.	1	1	0	0	0	5 - 26
2.	1	1	0	0	0	0
3.	1	1	0	0	0	0
4.	1	1	0	0	1	0
TOTAL	4	4	0	0	1	

3. Background (reference, 2.1.4). The ADAM III consignee file is accessible through additions, deletions, and changes to the consignee data. During air in-bound cargo processing, ADAM III automatically determines the correct APOD, the probable bay location, and onward mode of shipment code. Air inbound and surface outbound cargo processing can also use the consignee review/update function to enter data into the fields listed above as well as the truck route, onload sequence, and clear text address field. The CMOS consignee shipment record is allocated to the plan shipment system capability, and the consignee record is allocated to the process outbound surface freight system capability. The plan shipment capability permits the operator to select and enter a mode code and review or change the consignee DODAAC. The same capabilities are provided in process outbound surface freight plus the ability to enter a storage or bay location.

New Requirements for CMOS.

1. Allocate the consignee shipment record and the consignee record to the inbound air and surface outbound processes.

2. Build a site specific reference table for assigning storage locations for the following categories of incoming cargo:

a. General air cargo
b. General surface cargo
c. MICAP
d. 999
e. Personal baggage
f. Household goods

All location fields are two digit numeric fields.

3. Display these locations for the in-checker on the HHT and/or PC.

4. Provide the cargo in-checker the ability to override the projected storage location.

5. Provide a three character APOD field in the consignee record. The system should automatically generate this information for use during in-check.

6. Provide a two character onload sequence field.

7. Provide a clear text address.

8. Provide the onward mode of shipment by priority.

a. A - Air (Only shipments with an onward mode of "A" or left blank will be selected for airload plans).
b. S - Surface
c. T - Terminating

Shipments with "S" or "T" will be selected for truck load plans.

9. Provide the MATCU/ACA with access to this file.

	MENU OPTIONS	FULL SCREENS	HHT SCREENS	LOCAL REPORTS	EXTERNAL INTERFACES	DATA FIELDS
1.	2	0	0	0	0	0
2.	1	1	0	0	0	<5
3.	1	1	6	0	0	0
4.	1	1	6	0	0	0
5.	0	1	6	0	0	<5
6.	1	1	6	0	0	<5
7.	1	1	0	0	0	<5
8.	1	1	0	0	0	<5
9.	1	1	0	0	1	0
TOTAL	9	8	24	0	1	

4. Background (reference, 2.1.5). ADAM III tracks and reports status for cargo and pallets using a number of cargo status codes.

New Requirements for CMOS.

1. Add the following loose cargo status codes:

a. ADV - Advance (ATCMD submitted but cargo has not arrived.)
b. SEN - Sentinel (Cargo was deleted but the record has not been purged from the data base.)
c. INC - In-check (Cargo is on-hand but not movement ready.)
d. PRO - Processed (Cargo is on-hand, movement ready, and awaiting lift.)
e. PLT - Palletized (Cargo is on a pallet, movement ready, and awaiting lift.)
f. PLP - Palletized Load Planned (Cargo is on an air load planned pallet.)
g. MNL - Manifested Loose (Loose cargo that is air load planned.)
h. LFT - Lifted (Loose cargo which has departed.)
i. PLL - Palletized Lifted (Palletized cargo which has departed.)
j. AIB - Air Inbound (Cargo scheduled to arrive on an inbound mission.)
k. ARP - Air Receipted Palletized (Palletized cargo arrived by air but not movement ready.)
l. AIR - Air Inbound Receipted (Loose cargo arrived by air but not movement ready.)
m. LDP - Load Planned (Loose cargo load planned for surface.)
n. FB# - Frustrated (Frustrated cargo where # = reason for frustration.) The following frustration reason codes are employed:

(1) 1 - Cargo with documentation errors/problems
(2) 2 - Damaged shipments
(3) H - ACA/MATCU request to hold or divert
(4) 4 - Customs hold
(5) 5 - Suspected pilferage
(6) 6 - Cargo awaiting clearance (explosives)
(7) 7 - Cargo on the database which can't be located
(8) E - No matching consignee/APOD found during in-check
(9) D - Cargo awaiting diplomatic clearance

2. Add the following cargo pallet codes:

a. Sen - Sentinel
b. BIP - Build-In-Progress

c. PAR - Partial Pallet
d. CAP - Complete Pallet
e. LDP - Load planned
f. MAN - Manifested
g. LFT - Lifted
h. AIB - Air-In-Bound
i. AIR - AIB-Received
j. AIC - AIB-INC
k. ABD - AIB-Breakdown
l. FRS - Frustrated

3. Each time a status is entered or changed, the system will automatically update the record with a new time.

	MENU OPTIONS	FULL SCREENS	HHT SCREENS	LOCAL REPORTS	EXTERNAL INTERFACES	DATA FIELDS
1.	0	0	0	0	0	< 5
2.	0	0	0	0	0	< 5
3.	1	1	0	0	0	< 5
TOTAL	1	1	0	0	0	

5. Background (reference, 2.2.1). As cargo is entered into, processed, and moved out of the aerial port, ADAM III electronically transmits a series of transaction records to the HQ MAC Host when any of the data fields of a TCMD record or pallet header change. This data is used to maintain the currency and accuracy of the Host data base.

New Requirements for CMOS. Add the capability for CMOS to pass the transaction records listed below to the Host.

1. 420 Additions to the TCMD record
2. 430 Changes to the TCMD record
3. 440 Deletions to the TCMD record
4. 425 Additions to the pallet header
5. 435 Changes to the pallet header
6. 445 Deletions to the pallet header

Detailed record formats are available in the HQ MAC/SCUL-TRQS CAPS & CMOS Interface Design Document (Draft). HQ MAC will determine the frequency for CMOS to send these transactions to the MAC Host.

	MENU OPTIONS	FULL SCREENS	HHT SCREENS	LOCAL REPORTS	EXTERNAL INTERFACES	DATA FIELDS
1.	1	1	0	0	1	< 5
2.	1	0	0	0	1	0
3.	1	0	0	0	1	0
4.	1	1	0	0	1	< 5
5.	1	0	0	0	1	0
6.	1	0	0	0	1	0
TOTAL	6	2	0	0	6	

6. Background (reference, 2.2.1). There are 13 CMOS-ADAM III interface requirements contained in the Draft Interface Requirements Specification, November 30, 1989. The current interface requirements are as follows:

Transaction	Sender	Receiver
330 Delete Manifest	CMOS	HOST
400 Lifted Manifest	CMOS	HOST
505 Abort Mission	CMOS	HOST
560 Abort Mission	CMOS	MINIS
560 Abort Mission	MINIS	CMOS
900 Downline Manifest	CMOS	MINIS
900 Downline Manifest	MINIS	CMOS
410 Confirmation of Lift	TRAIS	CMOS
405 Reject Lift	HOST	CMOS
--- TCMD & Trailers	CMOS (ACA)	MINIS
--- Truck Manifest, TCMD & Trailers	MINIS	CMOS
--- Air Manifest & Trailers	HOST	CMOS
--- Air Manifest & Trailers	CMOS	HOST

All of these interfaces will be retained, although in the case of transactions originating in ADAM III (560, 900, Truck manifest, TCMD, and Trailers) CMOS will assume that responsibility with the merger.

New Requirements for CMOS.

Transaction	Sender	Receiver
1. 330 Delete Manifest	CMOS	CMOS
2. 400 Lifted Manifest	CMOS	CMOS
3. 560 Abort Mission	CMOS	CMOS
4. 900 Downline Manifest	CMOS	CMOS
5. 410 Confirmation of lift	CMOS	CMOS
6. 405 Reject lift	CMOS	CMOS
7. ---- TCMD & Trailer	CMOS (ACA)	CMOS
8. ---- Truck manifest TCMD & Trailer	CMOS	CMOS
9. ---- Air Manifest & Trailer	CMOS	CMOS

10.	570/580 ATCMD	MACA	CMOS
11.	570/580 ATCMD	CMOS	CMOS (ACA)

	MENU OPTIONS	FULL SCREENS	HHT SCREENS	LOCAL REPORTS	EXTERNAL INTERFACES	DATA FIELDS
1.	1	1	0	0	1	0
2.	1	1	0	0	1	0
3.	1	1	0	0	1	0
4.	1	1	0	0	1	0
5.	1	1	0	0	1	0
6.	1	1	0	0	1	0
7.	1	1	0	0	1	0
8.	1	1	0	0	1	0
9.	1	1	0	0	1	0
10.	1	1	0	0	1	0
11.	1	1	0	0	1	0
TOTAL	11	11	0	0	11	

7. Background (reference, 2.2.3). At Ramstein and Rhein Main Air Bases, ADAM III provides DAMMS with a tape containing truck manifest data and on-hand surface cargo awaiting lift. The data is provided daily.

New Requirements for CMOS. Provide truck manifest and on-hand surface cargo to a DAMMS representative by means of an air gap.

	MENU OPTIONS	FULL SCREENS	HHT SCREENS	LOCAL REPORTS	EXTERNAL INTERFACES	DATA FIELDS
1.	1	3	0	0	1	0
TOTAL	1	3	0	0	1	

8. Background (reference, 2.2.4 and 2.3.2). The ADAM III Aerial Port Control Center (APCC) function is used by the Numbered Air Forces (NAF) and Airlift Divisions (ALD) to select queries from the aerial port's data base to determine the status of processed and unprocessed pallets and loose cargo. The APCC function also enables TRAIS reports to be selected, along with the capability to trace cargo shipments by TCN and piece number.

New Requirements for CMOS.

1. Provide a CMOS terminal for each MAC NAF and ALD.

2. The terminal will furnish the same capabilities as the APCC function which are read only queries.

   a. Display current tonnage of pallets on-hand and movement ready for each APOD selected.
   b. Display current tonnage of pallets and loose cargo on-hand and movement ready for each APOD selected.
   c. Display current tonnage of unprocessed cargo on-hand for each APOD selected.
   d. Display cargo on-hand by each APOD within a specified area. These areas are displayed by Management Action Indicators (MAI) descriptions.
   e. Provide a cargo trace capability.
   f. Provide a capability to call up reports (TRAIS like) for subordinate ports.

	MENU OPTIONS	FULL SCREENS	HHT SCREENS	LOCAL REPORTS	EXTERNAL INTERFACES	DATA FIELDS
1.	0	0	0	0	0	0
2.	1	24	0	0	23	0
TOTAL	1	24	0	0	23	

9. Background (reference, 2.2.5). In the CONUS, shippers notify their service's ACA of CONUS outbound cargo to be airlifted. The ACA approves the cargo for airlift by submitting an advance TCMD to the HQ MAC MACA. MACA verifies that the ATCMD and trailers comply with MILSTAMP edits and returns those that fail for correction and resubmission. When the information is correct, MACA adds the ATCMD to its data base and then forwards the ATCMD and trailers to the appropriate aerial port.

New Requirements for CMOS.

1. Permit CMOS to accept ATCMD data from the MAC MACA.

2. Provide CMOS with the capability to receive an ATCMD cancellation notice from MACA, change the status of the ATCMD record to "cancel", and purge the ATCMD from the data base.

	MENU OPTIONS	FULL SCREENS	HHT SCREENS	LOCAL REPORTS	EXTERNAL INTERFACES	DATA FIELDS
1.	0	0	0	0	1	0
2.	1	3	0	0	1	< 5
TOTAL	1	3	0	0	2	

10. Background (reference, 2.4). A Military Air Traffic Coordinating Unit (MATCU) is located at the CONUS aerial ports. This MTMC liaison group coordinates with the sponsoring services and the aerial port to move cargo into and through the MAC airlift system.

New Requirements for CMOS.

1. Provide a CMOS terminal for each MATCU co-located with an aerial port.

2. Provide the MATCU with read only visibility of all cargo in the aerial port.

3. Provide the MATCU with the capability to create/review/update ATCMD data for cargo inbound to the aerial port. This will include modifying "approved" ATCMDs or building ATCMDs for cargo that arrives at the port with no ATCMD on file. The MATCU will not be able to create an ATCMD with a non-significant Transportation Account Code.

4. Provide the MATCU with the capability to initiate requests to upgrade movement priority (green sheet), downgrade movement priority, or change modes for cargo in the port.

   a. Upgrade action will require the ability to prepare TCMD trailers.

5. Provide the MATCU with the capability to modify the consignee file.

	MENU OPTIONS	FULL SCREENS	HHT SCREENS	LOCAL REPORTS	EXTERNAL INTERFACES	DATA FIELDS
1.	0	0	0	0	0	0
2.	1	1	0	0	1	0
3.	1	12	0	0	1	0
4.	1	1	0	0	1	0
5.	1	1	0	0	1	0
TOTAL	4	15	0	0	4	

11. Background (reference, 2.4). Overseas, Air Force shippers send ATCMDs to the ACA for cargo entering the MAC airlift system. The ACA validates the cargo for airlift and submits the ATCMD to the port (ADAM III MINIS). MINIS verifies that the ATCMD and trailers comply with MILSTAMP edits and returns those that fail for correction and resubmission. When the information is correct, MINIS adds the ATCMD to its data base. The ACA can cancel the advance, by submitting a cancel transaction. MINIS then changes the cargo's status and the ATCMD is deleted during the next bulk purge.

New Requirements for CMOS.

1. Provide the ACA with read only visibility of all cargo in the aerial port.

2. Provide the ACA with the capability to modify "approved" ATCMDs or build ATCMDs for cargo that arrives at the port with no ATCMD on file. The ACA will not be able to create an ATCMD with a nonsignificant Transportation Account Code.

3. Provide the ACA with the capability to initiate requests to upgrade movement priority (green sheet), downgrade movement priority, or change modes for cargo in the port.

   a. Upgrade action will require the ability to prepare TCMD trailers.

4. Provide the ACA with the capability to modify the consignee file.

5. Provide the ACA with the capability to select outbound surface cargo and identify inbound air cargo for onward movement by EDS.

   a. For cargo scheduled to move by outbound surface, ACA will notify surface freight to place the cargo in a new bay location.
   b. For cargo scheduled to arrive by air, the ACA will modify the probable onward mode and bay location.

6. Provide the ACA with the capability to cancel the ATCMD.

7. Provide CMOS with the capability to cancel the ATCMD and delete it from the database.

	MENU OPTIONS	FULL SCREENS	HHT SCREENS	LOCAL REPORTS	EXTERNAL INTERFACES	DATA FIELDS
1.	1	1	0	0	1	0
2.	1	1	0	0	0	0
3.	1	1	0	0	1	0
4.	1	1	0	0	1	0
5.	2	2	0	0	2	0
6.	1	0	0	0	1	0
7.	1	0	0	0	0	0
TOTAL	8	6	0	0	6	

12. Background (reference, 2.5). When surface cargo arrives at CONUS ports, truck dock personnel in-check it by keying in the TCN to look for an ATCMD to match with the movement document. ATCMDs are required for all shipments except life or death cargo, 999, MAC MICAP, VVIP, FSS, mail, courier material, SAAM, or Code J baggage. The truck is unloaded and the cargo moved to a bay location. The cargo status is changed to "in-checked", and a "420" transaction is sent adding the cargo to the Host's on-hand data base. Entry of the "420" transaction triggers the MINIS to send a receipt notice to MACA. MACA adds the receipt notice to its data base and sends a receipt notice to the appropriate ACA. If MACA does not have an ATCMD on file when it receives the receipt notice from the MINIS, MACA sends a no-hit message to the ACA, requesting an ATCMD with a valid TAC. The ACA sends the revised ATCMD back to MACA, which updates its data base and sends the ATCMD to the MINIS.

New Requirements for CMOS.

1. Provide the surface freight function with the capability to receive and store ATCMD data for in-checking.

2. Preposition ATCMD data to the hand held terminal (HHT).

3. CMOS will automatically advise the in-checker, through the HHT or PC, if no ATCMD is on file for the item, or is on file but has a non-significant TAC.

4. Reconcile the movement documentation with the ATCMD using the HHT or PC.

5. CMOS will automatically send a no-hit message to the ACA.

6. Permit the in-checker to enter TCMD data and construct a TCMD shell for the item.

7. Electronically send the TCMD data to the MATCU for validation and assignment of a proper TAC.

8. CMOS will automatically place the cargo in an "in-checked" status until the ATCMD is completed.

9. Cargo in the "in-checked" status will not be visible to the load planner and is not "movement ready".

10. After the MATCU has validated or corrected the TCMD data, it will be electronically transmitted to CMOS and the cargo status changed to "processed".

11. Upon completing the in-check, CMOS will notify the in-checker of the probable storage location. The in-checker will have the capability to override the location.

12. Electronically send a "420" transaction and a receipt notice to the appropriate ACA for cargo that is "in-checked".

	MENU OPTIONS	FULL SCREENS	HHT SCREENS	LOCAL REPORTS	EXTERNAL INTERFACES	DATA FIELDS
1.	0	0	0	0	1	0
2.	1	1	6	0	0	0
3.	0	1	6	0	0	0
4.	1	3	18	0	0	0
5.	0	0	0	0	1	< 5
6.	1	1	0	0	0	0
7.	1	0	0	0	1	0
8.	0	0	0	0	0	0
9.	0	0	0	0	0	0
10.	0	0	0	0	1	0
11.	1	2	0	0	0	0
12.	0	0	0	0	1	0
TOTAL	5	8	30	0	5	

13. Background (reference, 2.5). When surface cargo arrives at overseas ports, the handling procedures mirror those at CONUS ports with one exception. ADAM III does not send ATCMD receipt notifications to the ACA for overseas originating cargo.

New Requirements for CMOS.

1. Provide the surface freight function with the capability to receive and store ATCMD data for in-checking.

2. Preposition ATCMD data to the hand held terminal (HHT).

3. CMOS will automatically advise the in-checker, through the HHT or PC, if no ATCMD is on file for the item, or is on file but has a non-significant TAC.

4. Reconcile the movement documentation with the ATCMD using the HHT or PC.

5. CMOS will automatically send a no-hit message to the ACA.

6. Permit the in-checker to enter TCMD data and construct a TCMD shell for the item.

7. Electronically send the TCMD data to the ACA for validation and assignment of a proper TAC.

8. CMOS will automatically place the cargo in an "in-checked" status until the ATCMD is completed.

9. Cargo in the "in-checked" status will not be visible to the load planner and is not "movement ready".

10. After the ACA has validated or corrected the TCMD data, it will be electronically transmitted to CMOS and the cargo status changed to "processed".

11. Upon completing the in-check, CMOS will notify the in-checker of the probable storage location. The in-checker will have the capability to override the location.

	MENU OPTIONS	FULL SCREENS	HHT SCREENS	LOCAL REPORTS	EXTERNAL INTERFACES	DATA FIELDS
1.	0	0	0	0	1	0
2.	0	0	0	0	0	0
3.	0	0	0	0	0	0
4.	0	0	0	0	0	0
5.	0	0	0	0	1	0
6.	0	0	0	0	0	0
7.	1	0	0	0	1	0
8.	0	0	0	0	0	0
9.	0	0	0	0	0	0
10.	0	0	0	0	1	0
11.	0	0	0	0	0	0
TOTAL	1	0	0	0	4	

14. Background (reference, 2.6). ADAM III (MINIS) receives a "900" transaction (downline manifest) as advance notice of air inbound cargo. The "900" which contains the manifest, pallet, and loose cargo records is used to place the records in the MINIS data base in an "air inbound" status. When ramp services brings the cargo to the port, cargo processing changes the status for the manifest, pallets, detail, and loose cargo to "air inbound receipted" status. MINIS sends the Host a "425" transaction for each receipted pallet and a "420" transaction for each receipted prime TCMD. These transactions initialize the receipt time which begins port hold time.

Intransit pallets that remain intact are weighed and taken to the cargo processing storage area. The pallet status is changed to
"capped" and each detail record is changed to "palletized". MINIS notifies the Host of the change by sending a "435" transaction for the pallet and a "430" transaction for each TCMD. Once capped, the pallet can be selected for a mission by the load planner.

After receipting for the manifest, cargo processing personnel break down the pallets and bay the cargo. The TCMD status is changed to "in-checked" and the pallet ID in the TCMD record is changed to the bay location. MINIS submits a "430" transaction to notify the Host that the detail record has changed. When all the TCMDs are removed, MINIS submits a "445" transaction to delete the pallet record.

New Requirements for CMOS.

1. Establish the air inbound record using the downline manifest ("900" transaction).

2. Preposition manifest data to the HHT.

3. CMOS will automatically advise the in-checker, through the HHT or PC, if no manifest is on file.

4. Reconcile the air manifest with the prepositioned manifest.

5. Enter cargo "receipted" time and cargo "in-checked" time. Port hold time will be measured from the time of receipt.

6. In-check a manifest by line item, pallet, or by accepting all loose cargo on a manifest.

7. Automatically notify the system manager or MATCU/ACA to establish a record in the consignee file for the DODAAC/APOD.

8. Upon completing the in-check, CMOS will notify the in-checker of the probable bay location and/or the probable onward shipping mode/method.

9. The in-checker will have the capability to override the probable bay location.

10. Release cargo to the consignee during the in-check procedure.

11. For pallets moving intact, entry of the pallet's actual weight will prompt the system to automatically compare the scale weight with the document weight. If the differential between the weights is outside the permissible ranges in DOD 4500-32R, the system will alert the operator that the pallet is not movement ready.

	MENU OPTIONS	FULL SCREENS	HHT SCREENS	LOCAL REPORTS	EXTERNAL INTERFACES	DATA FIELDS
1.	0	0	0	0	1	0
2.	1	1	6	0	0	0
3.	0	1	6	0	0	0
4.	1	1	6	0	0	0
5.	1	1	6	0	0	< 5
6.	1	4	24	0	0	0
7.	1	2	0	0	2	0
8.	0	0	0	0	0	0
9.	0	0	0	0	0	0
10.	0	0	0	0	0	0
11.	1	2	0	0	0	5 - 26
TOTAL	6	12	48	0	3	

15. Background (reference, 2.7 and 2.8). Once loose cargo has been in-checked into the aerial port, cargo processing personnel begin building a pallet by submitting a "425" transaction to the Host showing the status as "build in progress". As soon as they add cargo to the pallet, MINIS changes the pallet status to "partial" by sending a "435" transaction. MINIS automatically links the individual TCMD to the specific pallet. Each time a TCMD is added to the pallet, a "430" transaction with a "palletized" status and the pallet ID for each TCMD are sent to the Host, modifying the on-hand data base. Cargo processing personnel continue selecting cargo until the pallet is finished, cap the pallet, and send a "435" transaction to reflect the "complete" status. This updates the Host's on-hand data base. Once capped, the load planners can select the pallet for a mission.

If cargo processing needs to stop a pallet before it is capped, they send a "435" transaction to update the pallet status. Cargo processing sends a "430" transaction for each TCMD that is added to the pallet. If cargo needs to move as loose, it can be changed to the "processed" status once in-checked and is visible to the load planner.

Load storage groups are displayed after each series of pallet/loose cargo records and hazardous cargo incompatibilities is displayed for the load planner. However, incompatibilities do not stop the records from being accepted for a mission. Load planners use the "mission plan" function to select movement ready pallet and loose cargo records for up to 9 APODs and 3 MAIs. Load planning personnel generate load pull sheets for completed missions by using the "load pull sheet" function.

New Requirements for CMOS.

1. Place a pallet in the "capped" status once the buildup is completed. Once capped, no changes can be made to the pallet record.

2. Assign a grid location for "capped" pallets.

3. Display a warning when incompatible hazardous cargo, either palletized or loose, is being load planned.

4. Support the MAI capability.

5. Produce a load pull sheet for each mission being load planned.

6. Produce a MAC FORM 272 for load sequencing. When available, the CALM load plan schematic will replace this form.

7. Provide the capability to inventory cargo on-hand. The system will automatically provide a prompt indicating an inventory needs to be done based on a user defined schedule.

	MENU OPTIONS	FULL SCREENS	HHT SCREENS	LOCAL REPORTS	EXTERNAL INTERFACES	DATA FIELDS
1.	1	1	0	0	0	0
2.	1	2	0	0	0	< 5
3.	0	1	0	0	0	< 5
4.	1	2	0	0	0	< 5
5.	1	2	0	1	0	< 5
6.	1	2	0	1	0	< 5
7.	1	2	12	1	0	< 5
TOTAL	6	12	12	3	0	

16. Background (reference, 2.7.5). The aerial port's special handling section has a wide range of capabilities since it operates as a mini-aerial port with responsibilities for the in-check, processing, storage, inventory, and manifesting of all cargo having a special handling code and cargo with select commodity codes.

New Requirements for CMOS. Special handling must be able to perform air and surface inbound functions, cargo processing actions, as well as air and surface outbound processes. The specific capabilities are:

1. In-check and bay inbound air and surface cargo.

2. Add/change/delete TCMD trailer data.

3. Build and breakdown pallets.

4. Review/change cargo assigned to special handling bay locations.

5. Inventory cargo assigned to special handling bay locations.
The system will automatically provide a prompt indicating an inventory needs to be done, based on a user defined schedule.

6. Identify cargo that will be moved under DOT Exemption 7523. A cumulative record of cargo moved under this exemption will be maintained in a 7573 Exemption file.

7. Produce surface movement documents, such as GBLs, CBLs, freight warrants, and truck manifests.

8. Prepare DD Form 1387-2s.

	MENU OPTIONS	FULL SCREENS	HHT SCREENS	LOCAL REPORTS	EXTERNAL INTERFACES	DATA FIELDS
1.	2	4	24	0	0	0
2.	1	2	12	0	0	0
3.	2	2	12	0	0	0
4.	1	1	6	0	0	0
5.	1	2	12	1	0	0
6.	1	1	6	0	0	< 5
7.	1	5	6	0	0	0
8.	1	2	0	0	0	0
TOTAL	10	19	78	1	0	

17. Background (reference, 2.9). The outbound truck processing procedures give ADAM III users the ability to collect and adjust outbound truck data, select cargo for outbound trucks, create truck manifests, identify cargo for each stop on a truck route, and record the time of truck departure. Once the manifest is produced and turned over to TMO personnel, MAC port hold time ends. TMO personnel prepare the movement document and notify aerial port personnel when the truck departs.

New Requirements for CMOS.

1. Manifest trucks to multiple destinations.

2. Assign manifest reference numbers for each destination on the truck route.

	MENU OPTIONS	FULL SCREENS	HHT SCREENS	LOCAL REPORTS	EXTERNAL INTERFACES	DATA FIELDS
1.	1	2	0	1	0	0
2.	1	0	0	0	0	0
TOTAL	2	2	0	1	0	

18. Background (reference, 2.10). The ADAM III port management function covers the reports and data base queries that port managers use to manage the MINIS data base. This function is divided into three categories: TRAIS reports, local reports (on-demand and time-generated), and data base queries. TRAIS reports represent a daily snapshot of the HQ MAC data base, and they can be requested by the ports. Under the merger, the CMOS data base will replace the TRAIS data base as the source for these reports. Much of the information in the ADAM III local reports is unique to MAC and not present in CMOS. The ADAM III data base queries extract data that is common to CMOS. Access to this information is provided through the unmanifested shipment capability. The CMOS SSS states that a list of all unmanifested shipments "shall at the operator's selection, be sequenced by cargo warehouse location, destination port of debarkation, DODAAC, or priority." This seems to preclude the assignment of a primary and a secondary key in the same query.

New Requirements for CMOS.

1. Local reports. There are 17 local management reports available and 4 of these will be approximated in CMOS.

a. Local report 4 - Pallet Grid Inventory Report
b. Local report 6 - Port Level by Destination
c. Local report 8 - MICAP/Green Sheet/999
d. Local report 9 - Cargo by Commodity/Special Handling Code
e. Local report 10 - Oversized/Outsized Cargo List
f. Local report 11 - Excessive PHT and/or SET
g. Local report 12 - Onhand Data by Project Code or TAC
h. Local report 13 - Summary Data by Project Code or TAC
i. Local report 14 - Unchanged Cargo Status
j. Local report 15 - Cargo On-hand by Consignee
k. Local report 16 - Surface Cargo in Loose Locations in Consignee Sequence
l. Local report 17 - ACA Report
m. Local report 18 - Pallet Listing Report

2. Database queries. There are 10 query reports available and four will be approximated in CMOS.

a. Query request 2 - Cargo by APOD and status
b. Query request 3 - Cargo by APOD and priority
c. Query request 4 - Cargo by APOD, status, and priority
d. Query request 5 - Cargo by status and priority
e. Query request 6 - Cargo by status and onward mode

f. Query request 9 - Cargo by pallet contents in the port

3. TRAIS Reports. There are 18 TRAIS reports and none are available in CMOS.

a. Unprocessed port profile on-hand
b. Processing port profile on-hand
c. Movement ready pallets on-hand
d. Manifest header summary
e. Daily workload
f. Cumulative port hold/processing times
g. 24 hour/cumulative movement for pallets
h. Air outbound movement report
i. On-hand cargo report
j. Inventory of 999 old age cargo
k. Mission recap
l. Super priority cargo/mail port total
m. Deleted records
n. Detail movement report
o. TP4 on-hand by channel
p. TP4 movement by channel
q. TP4 on-hand by category
r. TP4 movement by category

	MENU OPTIONS	FULL SCREENS	HHT SCREENS	LOCAL REPORTS	EXTERNAL INTERFACES	DATA FIELDS
1.	1	14	0	13	0	> 26
2.	1	7	0	6	0	< 5
3.	1	19	0	18	0	
TOTAL	3	40	0	37	0	

Attachment 1

FRUSTRATION REASON CODES

CODE	REASON
FRD	Requires diplomatic clearance.
FR1	Incomplete or improper documentation, including packing, labeling or marking that cannot be corrected at time of in-check.
FR2	Receipt of damaged shipments.
FR3	Request from ACAs/MATCOs/MATCUs to hold, divert, or otherwise remove a shipment from the airlift system.
FR4	Request from US Customs to hold, divert, or otherwise remove (confiscate) a shipment from the airlift system.
FR5	Receipt of suspected pilfered shipments.
FR6	Shipments awaiting air clearance either at origin or destination station. (Example: A shipment of class A explosives may be frustrated at the APOE due to limited storage capacity at the APOD.)
FR7	Shipments received and in-checked/processed but cannot be located within the terminal complex; i.e., shipments overshipped, incorrect entries into the data base, stolen/lost shipments and items not located during terminal inventories. (These items must have DISCON, DISREP or tracer actions as appropriate initiated.)
FR8	Reserved.
FR9	Reserved.
FRE	This frustration code is automatically assigned by the system if documentation errors were found during Air Inbound processing.

Attachment 2

DELETION REASON CODES FOR TCMD RECORDS

Code	Reason
A	Correction of erroneous/mispunched TCN and/or documentation identifier code (DIC).
B	Split shipments (FRS).
C	Frustrated cargo which will not be shipped.
D	Short shipments (all pieces).
E	Correction of erroneous receipt time.
F	Cargo lost.
G	Pilfered/confiscated cargo.
H	Diversion/reconsignment and (aircraft diversion).
J	Report of Survey.
K	Packaging/handling deficiencies.
L	Piece control shipments deleted for re-entry under shipment control.
M	Shipment control shipments deleted for re-entry under piece control.
N	TCN deleted for consolidation of the shipment under a different TCN.
P	Reserved.
Q	Reserved.
R	Reserved.
S	Receipted short shipment in air inbound status.
T	Reserved.
U	Reserved.
V	Reserved.
W	Reserved.
X	Reserved.
Y	Reserved.
Z	Reserved.